The Gulf of Mexico's estuaries and nearshore coastal waters support critical fisheries and wildlife habitats that contribute significantly to the national and Gulf state economies. The introduction of excessive nutrients into the waters of the Gulf can impact the ecology of the natural system, causing habitat loss, depletion of dissolved oxygen and decline of marine organisms.

Strengths in Reducing Nutrient Loading: Existing Agency Actions

The states and federal agencies have established programs to address nutrient loading to the Gulf of Mexico:

- The U.S. Environmental Protection Agency (EPA) developed a national nutrient strategy and completed an *Action Plan for Reducing, Mitigating and Controlling Hypoxia in the Northern Gulf of Mexico.*
- National Resource Conservation Service allocated millions of dollars to reduce nutrient loadings.
- Texas' extensive coastal water quality effort has improved efficiency and eliminated duplication of efforts.
- Alabama implements the Alabama Monitoring and Assessment Program and the Non-point Assessment program.
- Louisiana's non-point program supports the development of nutrient best management practices in strong partnership with the National Resource Conservation Service.
- The states are developing nutrient criteria for state waters.
- The states and the U.S. EPA are continuing to develop the Total Maximum Daily Load (TMDL) program to identify and restore degraded waters.
- National Estuary Programs are addressing nutrient loading at a local level.

Challenges and Barriers to Reducing Nutrient Loading

Challenges and barriers to addressing the complexity of nutrient loading include:

- Differentiating natural nutrient conditions from anthropogenic causes.
- Addressing nutrient loading generated upriver of the Gulf states.
- Insufficient data to adequately characterize nutrient and biological conditions for many water bodies.
- Understanding the relationship between land use and nutrient problems.
- Inconsistent data collection techniques and protocols, which leads to comparability issues.

Solutions and Opportunities for Reducing Nutrient Loading

Reducing the impact of nutrients on the Gulf's coastal waters requires a coordinated and adaptive state-federal approach together with cost effective public-private partnerships:

- Design biological monitoring to support development of biological response criteria.
- Improve the consistency and quality assurance of data collections efforts.
- Establish nutrient criteria for state coastal waters.
- Develop tools to better understand the relationship between land use and nutrient problems.
- Establish technically-rigorous TMDLs for nutrients and cost-effect strategies for addressing those TMDLs.
- Establish partnerships to implement nutrient reduction strategies.
- Increase agricultural nutrient reduction, upgrades to wastewater treatment plants and stormwater management.
- Acquire land to establish buffers along waterways.
- Improve standard practices for stormwater systems associated with the Federal-Aid Highway program.

Needs from a State/Federal Partnership to Reduce Nutrient Loading

- Comprehensive and coordinated efforts among federal, state, and local entities to evaluate and prioritize nutrient issues.
- Development of better strategies to reduce nutrients entering coastal waters.
- Expanded monitoring with consistent methodology across state jurisdictions.
- Better merge water quality with biological monitoring programs.
- Create a central repository for Gulf nutrient data.
- Assistance in developing appropriate nutrient criteria.
- Research on the downstream effects of nutrient load abatement.
- Continued efforts from the National Hypoxia Task Force and Gulf of Mexico Program.